

**REMARKS**

Reconsideration and allowance of the subject application are respectfully requested. Claims 1-31 are now pending, claims 1, 18, and 31 being independent. In this Reply, Applicants have amended dependent claims 9 and 26 to correct minor typographical errors. Applicants have added new claim 31.

**Claim Objections**

Applicants have amended dependent claims 9 and 26 to correct the informalities cited by the Examiner on page 2 of the Office Action. Accordingly, Applicants respectfully request that the claim objections be withdrawn.

**Prior Art Rejections****1. Shelly - Gallios**

Claims 1, 7-12, 18-22, and 24-30 stand rejected under 35 U.S.C. § 103 as allegedly being unpatentable over *Shelly* (U.S. Patent 4,251,857) in view of *Gallios et al.* (U.S. Patent 4,893,227). This rejection is respectfully traversed.

Independent claim 1 is directed to a high-voltage power supply. The high-voltage power supply of claim 1 comprises: a power scaling section receiving an input voltage signal and converting the input voltage signal to a controllable DC voltage; a push-pull converter for converting the controllable DC voltage to a high-frequency wave; and a voltage multiplier receiving the high-frequency wave generated by the push-pull converter and performing successive voltage doubling operations to generate a high-voltage DC output, the generated high-voltage DC output being varied as the controllable DC voltage varies. Therefore, the high-voltage power supply of claim 1 generates a variable high-voltage output, based on the controllable DC voltage generated by the power scaling section, by using a push-pull converter to convert a controllable DC voltage to a high-frequency wave and a voltage multiplier to perform

successive voltage doubling operations on the high-frequency wave output by the push-pull converter.

The primary reference, *Shelly*, discloses a power supply having: a DC-DC chopper-converter unit 10, which converts an input voltage  $V_{IN}$  to a lower voltage; and a DC-DC inverter-converter 12, which converts the voltage output by the DC-DC chopper-converter 10 to an output voltage  $V_{OUT}$ . The power supply of *Shelly* compensates for variations in the power supply's output voltage due to variations in output loading. More specifically, the power supply of *Shelly* illustrated in Fig. 1 includes a sensing network 14, which outputs a current signal  $i_1$  that varies in proportion to output voltage variations, thereby causing the output voltage of the DC-DC chopper-converter 10 to compensate for such output voltage variations. See e.g., Fig. 1; col. 3, lines 16-36.

Page 3 of the Office Action acknowledges that the power supply of *Shelly* lacks a voltage multiplier for performing successive voltage doubling operations to generate a high-voltage DC output as recited in claim 1, but relies on the secondary teachings of *Gallios* as allegedly making up for this deficiency of *Shelly*. The Office Action concludes that:

...it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify *Shelly* to include a voltage multiplier for receiving high frequency wave generated by a push pull converter for performing successive voltage doubling operations to generate a high voltage dc output in order to provide high output voltage to a load requiring very high output voltage as taught by *Gallios* et al.

Applicants respectfully submit that this reasoning fails to establish *prima facie* obviousness of claim 1, or any claim depending therefrom.

To establish *prima facie* obviousness, all claim limitations must be taught or suggested by the prior art and the asserted modification or combination of prior art must be supported by some teaching, suggestion, or motivation in the applied reference

or in knowledge generally available to one skilled in the art. *In re Fine*, 837, F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). The prior art must suggest the desirability of the modification in order to establish a *prima facie* case of obviousness. *In re Brouwer*, 77 F.3d 422, 425, 37 USPQ2d 1663, 1666 (Fed. Cir. 1995). It can also be said that the prior art must collectively suggest or point to the claimed invention to support a finding of obviousness. *In re Hedges*, 783 F.2d 1038, 1041, 228 USPQ 685, 687 (Fed. Cir. 1986); *In re Ehrreich*, 590 F.2d 902, 908-09, 200 USPQ 504, 510 (CCPA 1979).

The asserted rejection is based on the assertion that the power supply of *Shelly* includes a push-pull converter as claimed, which converts a controllable DC voltage output by a power scaling section to a high-frequency wave. Applicants note, however, that there is no teaching in *Shelly* that the DC-DC inverter-converter 12 outputs a high-frequency wave. Although the Examiner cites the Abstract of *Shelly*, there is no mention in the Abstract (or the remainder of *Shelly*) that the DC-DC inverter-converter 12 outputs a high-frequency wave as claimed. Therefore, the asserted combination of *Shelly* and *Gallios* (assuming these references may be combined, which Applicants do not admit) fails to teach all features of claim 1.

Furthermore, the Examiner has failed to establish that one of ordinary skill in the art would have been motivated to incorporate a voltage multiplier as allegedly taught by *Gallios* in the power supply of *Shelly*. Initially, Applicants note that the DC-DC inverter-converter 12 and DC-DC chopper-inverter 10 combination of *Shelly* is specifically designed to regulate voltage appearing at the loads being supplied therein. The Examiner has failed to establish that there would be any advantage gained by incorporating a voltage multiplier with successive voltage operations in *Shelly*, particularly since such a modification would appear to require a significant redesign of the power conversion elements specifically disclosed therein. Still further, the power supply of *Shelly* compensates for load-induced output voltage fluctuations with a

current sensing circuit arrangement 14 that generates a current that varies in proportion to such voltage fluctuations in the particular power supply arrangement disclosed therein. Modifying the power supply of *Shelly* as proposed by the Examiner would appear to render the particular disclosed current sensing arrangement 14 unsuitable for this purpose. See e.g., MPEP § 2143.02 (specifying that a proposed modification or combination relied on to assert obviousness cannot change the principle operation of the prior art being modified).

At least for the above reasons, Applicants respectfully submit that the asserted grounds of rejection fails to establish *prima facie* obviousness of claim 1 or any claim depending therefrom. Independent claim 18, and claims depending therefrom, define over the asserted combination based upon similar reasoning to that set forth above with regard to claim 1.

With reference to certain dependent claims, for example claims 7, 9-11, 24, 27, and 28, page 3 of the Office Action refers to teachings of *Gak et al.* (U.S. Patent 6,141,225). Applicants note, however, that the asserted grounds of rejection fails to rely on *Gak*. See e.g., the introductory paragraph under section “4.” of the Detailed Action. Assuming the Examiner is relying on *Gak* as allegedly teaching incremental features of these dependent claims, Applicants note that the Office Action fails to assert how the primary reference is being modified to incorporate features of *Gak* or why one of ordinary skill in the art would have been motivated to make such a modification. If this rejection is maintained, Applicants request that the Examiner clarify this grounds of rejection.

At least in view of the above, Applicants respectfully request that the prior art rejection based on the asserted combination of *Shelly* and *Gallios* be reconsidered and withdrawn.

2. **Shelly - Gallios - Gak**

Claims 2-6 and 23 stand rejected under 35 U.S.C. § 103 as allegedly being unpatentable over *Shelly* in view of *Gallios* and *Gak*. This rejection is respectfully traversed.

As set forth on pages 4-5 of the Office Action, the Examiner relies on *Gak* as allegedly teaching incremental features of dependent claims 2-6 and 23. The Examiner's reliance on *Gak*, however, fails to make up for the deficiencies of the *Shelly-Gallios* combination discussed above with respect to the independent claims. Accordingly, Applicants respectfully submit that the asserted combination of *Shelly*, *Gallios*, and *Gak* (assuming these references may be combined, which Applicants do not admit) fails to establish *prima facie* obviousness of any pending claim.

In view of the above, Applicants respectfully request reconsideration and withdrawal of the Examiner's rejection under 35 U.S.C. § 103 based on the asserted combination of *Shelly*, *Gallios*, and *Gak*.

3. **Shelly - Gallios - Adasko**

Claims 13-17 stand rejected under 35 U.S.C. § 103 as allegedly being unpatentable over *Shelly* in view of *Gallios*, and further in view of *Adasko et al.* (U.S. Patent 5,414,224). This rejection is respectfully traversed.

As set forth on page 6 of the Office Action, the Examiner relies on additional secondary teachings of *Adasko* as allegedly disclosing incremental features of dependent claims 13-17. Initially, Applicants note that the Examiner's reliance on *Adasko* fails to make up for the deficiencies of the base *Shelly-Gallios* combination discussed above with respect to the independent claims. Furthermore, in response to the Examiner's apparent position that these claims relate to matters of routine skill in the art, Applicants

respectfully submit that this reasoning fails to provide motivation for modifying *Shelly* in a manner that satisfies the features of these claims.

At least in view of the above, Applicants respectfully submit that the asserted combination of *Shelly*, *Gallios*, and *Adasko* (assuming these references may be combined, which Applicants do not admit) fails to establish *prima facie* obviousness of any pending claim.

In view of the above, Applicants respectfully request reconsideration and withdrawal of the Examiner's rejection under 35 U.S.C. § 103 based on the asserted combination of *Shelly*, *Gallios*, and *Adasko*.

### **New Claim 31**

Newly-added independent claim 31 defines over the asserted prior art at least for reasons set forth above to claim 1, and further based on additional details recited therein.

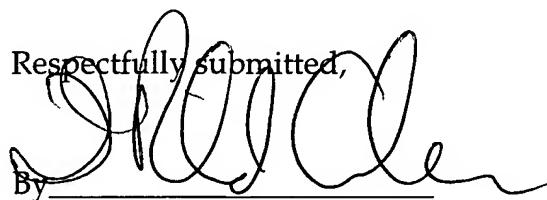
### **Conclusion**

Pursuant to the provisions of 37 C.F.R. § 1.17 and § 1.136(a), Applicant hereby petitions for an extension of one (1) month in which to file a response to the outstanding Office Action. The required fee of \$120.00 is attached to the RCE which is being filed concurrently herewith.

If the Examiner has any questions concerning this application, the Examiner is requested to contact the undersigned at the telephone number of (703) 205-8000. Facsimile communications may be sent to facsimile number (703) 205-8050.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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